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THE BRYOLOGIST

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FISSIDENS IN NORTHEASTERN NORTH AMERICA.

By ANNIE MORRILL SMITH.

IT is very easy to recognize a *Fissidens* if looked at carefully with a hand lens, and under the microscope with even a very low power one need not hesitate. The leaves are entirely different from any of the mosses already studied in *THE BRYOLOGIST*. They are in two ranks and apparently edgewise to the stem, with the basal portion of the upper edge apparently split in two and sheathing the stem and the lower edge of the leaf next above it, as shown in the figure. In *Bryum* the border is made up of cells of an entirely different character and shape from those of the rest of the leaf, while in *Fissidens* the border cells are of the same size and differ only in being of a lighter color, or paler, as the key says. The leaf then consists of three parts, differently named by different authors. I prefer to follow in this study Prof. Charles R. Barnes' Revision of the North American Species of *Fissidens*, *Botanical Gazette*, Vol. XII, January and February, 1887. The three parts are called *vaginant lamina*, *vertical lamina* and *inferior lamina* to designate respectively the sheathing or conduplicate portion of the leaf, Fig. 3, *a*; the whole of the vertical blade, *b*; and the part of it below the costa, *c*. The peristome is so much like that of the *Dicranums* that the families to which these genera belong are usually regarded as somewhat closely allied.

For the benefit of the more advanced students I refer them to a reprint on "The Genus *Fissidens*," by Ernest Stanley Salmon, of Charlton House, Kew, England, in *Annals of Botany*, Vol. XIII, March, 1899. This, in three double plates, gives 94 figures and is very full regarding the morphology of the genus as well as classification.

Key to the species:*

A.—FRUIT TERMINAL.

Leaves with a narrow border, at least on the vaginant lamina—

Border usually confluent at apex with percurrent costa;
male flowers axillary. *F. bryoides*.

Border wanting at apex; male flowers at base of stems;
leaf cells smooth. *F. incurvus*.

Border none except on vaginant lamina; leaf cells papil-
lose. *F. Ravenelii*.

*I am greatly indebted to Prof. Charles R. Barnes for invaluable assistance in preparing this key.

Leaves without a border—

- Leaves obtuse, cells pellucid, operculum, conic, ... *F. obtusifolius*.
- Leaves apiculate, operculum acicular-rostrate, ... *F. osmundoides*.

B.—FRUIT LATERAL.

Leaves without a border—

- Leaves broad pointed, irregularly serrulate; fruit sub-basal; plants 1–2^{cm}. high, ... *F. subbasilaris*.
- Leaves mucronate, regularly serrulate; fruit basal or sub-basal, ... *F. taxifolius*.
- Leaves bordered by several rows of paler, often incrassate cells—
- Leaf cells obscure (6–9×6–12^μ), capsule erect or inclined, ... *F. cristatus* Wils*.
- Leaf cells distinct (12–15×18–24^μ) capsule erect or inclined, ... *F. adiantoides*.

C.—PLANTS AQUATIC.

- Plants sterile, large (5–15^{cm}.), growing in very wet places or in water. Leaves thick, rigid, opaque, *F. grandifrons*.
- Plants filiform, much branched, aquatic and floating, with the habit of a Fontinalis. Leaves not rigid, *F. julianus*.

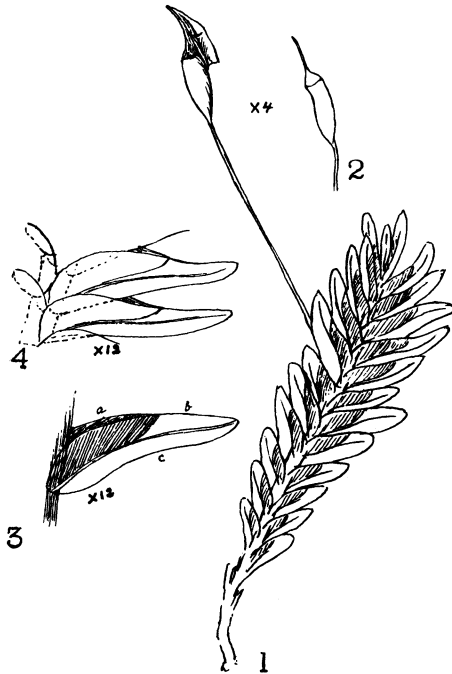
**F. decipiens* L. & J. Manual.

The ten species above given are those most likely to be collected in our range. Of the aquatic series only *F. grandifrons* Bridel and *F. julianus* (Savi.) Schimp. are included, though *F. Hallianus* Mitt. may be found more rarely on wood and stones in swamps and streams. *F. grandifrons* Bridel has been found over a wider range than is given in the Manual and should be looked for in many limestone regions. Owing to its large size it will not be overlooked if present at all. *F. Closteri* Aust. and *F. hyalinus* Hook. & Wils. have been omitted as being too rare and also too minute to be often found by a beginner, for whom this key and notes are intended. *F. polypoidoides* Hedw. has also been left out, as it is sub-tropical only. It is found in Florida and in the southern half of Georgia.

Of the species given in the key, *F. subbasilaris* Hedw. is reported as not common. I have it from two stations only, one in New York State and the other near Baltimore. It is a small plant and therefore easily overlooked; this applies as well to *F. bryoides* Hedw., which may sometimes be found growing on greenhouse pots. *F. incurvus* Schwaegr. is another small plant very common East. There are two varieties as given by Prof. Barnes in his Revision, namely, var. *minutulus* Aust. and var. *exiguus* Aust. Authors differ about the specific rank of these three mosses, but this question will not be considered now, as one

will not go far wrong if they unite both varieties under *incurvus*, and leave the subject of specific rank and nomenclature to wiser heads.

F. Ravenelii Sulliv. is a minute moss found on Cypress trees in southern swamps, but while more frequent in the extreme south, is reported from South Carolina and further search may extend its northern limits. The other mosses of our list are of medium to large size and common. *F. cristatus* Wils., which is offered to Chapter members, is of medium size and grows on the soil and rocks; it somewhat resembles *F. adiantoides* Hedw., but the leaves are usually more closely imbricated. *F. obtusifolius* Wils. grows on wet rocks or stones and is of frequent occurrence, constituting with *F. adiantoides* Hedw., *F. cristatus* Wils. and *F. taxifolius* Hedw., our most common species. *F. osmundoides* Hedw. is also common in all situations.



DESCRIPTION OF FIGURES. 1. Fruiting *Fissidens cristatus*. 2. Capsule with calyptra removed. 3. Leaf and portion of stem to which it is attached. 4. Leaves, showing how they overlap each other and sheath the stem.